ARJUNA 2.0 JEE 2026

TRIGONOMETRIC FUNCTIONS

Mathematics Lecture - 01

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Topics to be covered

1. Revision of Class 10th Formulas
2. Sign Convention in Trigonometry
3. ASTC Rule

Weekly no. of Questions

A) Less than 50] 44%

B) 50 - 80] → 26%

C) 80 - 110] 20%

D) 110+] 9%

+10

6 days × 20 = 120 min

6 × 30 = 180 ✓

6 × 35 = 210 ✓

Fractional Part Function

$$[x] + \{x\} = x$$

$$\{x\} = x - [x]$$

9. $y = \{x\}$

$y = \{x\}$

$y = x - [x] = x - 0$ if $x \in [0,1)$

$y = x - 1$, if $x \in [1,2)$

$y = x - 2$, if $x \in [2,3)$

$y = x - (-1) = x + 1$ if $x \in [-1,0)$

$[x] = 0$

$\{x \to$

$\{-1.9\} = 0.1$

$\{-1.3\} = 0.7$

$\{-10.8\} = 0.2$

$\{-3.15\} = 1 - 0.15 = 0.85$

$\{10.15\} = 0.15$

$[2.1] = 2$

$[3] = 3$

$[4.9] = 4$

$[-1.7] = -2$

$\{2.1\} = 0.1$

$\{5.9\} = 0.9$

$\{3\} = 0$

$\{4.9\} = 0.9$

let $\{-1.7\} = K$

$[-1.7] + \{-1.7\} = -1.7$

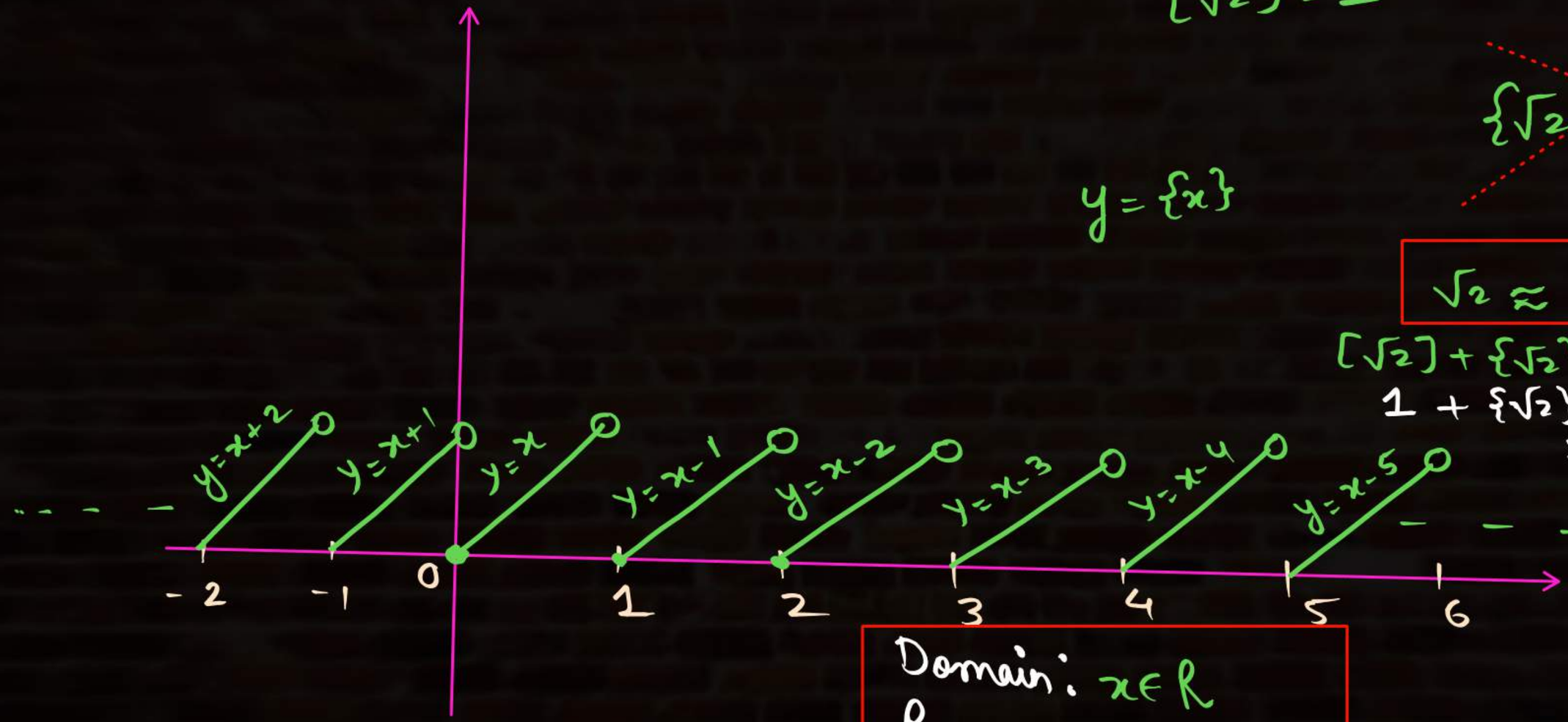
$-2 + K = -1.7$

$K = 2 - 1.7 = 0.3$

$[\sqrt{2}] = 1$

$\{\sqrt{2}\} = 0.414$

$y = \{x\}$



$\sqrt{2} \approx 1.414$

$[\sqrt{2}] + \{\sqrt{2}\} = \sqrt{2}$

$1 + \{\sqrt{2}\} = \sqrt{2}$

$\{\sqrt{2}\} = \sqrt{2} - 1$

Domain: $x \in R$

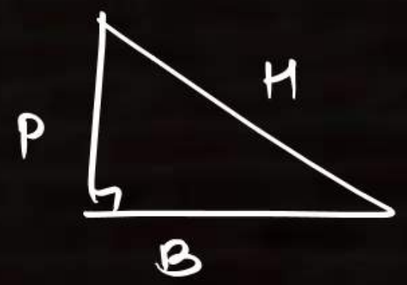
Range: $y \in [0, 1)$

$[\pi] = 3$ $\quad \{\pi\} = \pi - 3$

$\{e\} = e - 2$

Class 10th RECAP

S = P/H
C = B/H
T = P/B



Trigonometric ratios for θ are defined as below:

(i) $\text{sine}\,\theta = \frac{\text{perpendicular}}{\text{hypotenuse}} = \frac{P}{H}$ and is written as $\sin\theta$.

(ii) $\text{cosine}\,\theta = \frac{\text{base}}{\text{hypotenuse}} = \frac{B}{H}$ and is written as $\cos\theta$.

(iii) $\text{tangent}\,\theta = \frac{\text{perpendicular}}{\text{base}} = \frac{P}{B}$ and is written as $\tan\theta$.

(iv) $\text{cosecant}\,\theta = \frac{\text{hypotenuse}}{\text{perpendicular}} = \frac{H}{P}$ and is written as $\text{cosec}\,\theta$.

(v) $\text{secant}\,\theta = \frac{\text{hypotenuse}}{\text{base}} = \frac{H}{B}$ and is written as $\sec\theta$.

(vi) $\text{cotangent}\,\theta = \frac{\text{base}}{\text{perpendicular}} = \frac{B}{P}$ and is written as $\cot\theta$.

Class 10th RECAP

Values of all the Trigonometric Ratios of 0°, 30°, 45 °, 60 ° and 90°

θ	0°	30°	45°	60°	90°
sin θ	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
cos θ	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
tan θ	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	N. D.
cosec θ	N. D	2	$\sqrt{2}$	$\frac{2}{\sqrt{3}}$	1
sec θ	1	$\frac{2}{\sqrt{3}}$	$\sqrt{2}$	2	N. D
cot θ	N. D	$\sqrt{3}$	1	$\frac{1}{\sqrt{3}}$	0

Question

[Ans. *B*]

If θ is an acute angle such that $5\cot\theta = 3$, then find the value of $\dfrac{(5\sin\theta - 3\cos\theta)}{(4\sin\theta + 3\cos\theta)}$

(A) $\frac{11}{18}$

(B) $\frac{16}{29}$

(C) $\frac{14}{27}$

(D) None of these

$\cot\theta = 3/5$

$\frac{\cos\theta}{\sin\theta} = 3/5$

Divide N^r & D^r by $\sin\theta$

$$\frac{5 - 3\left(\frac{\cos\theta}{\sin\theta}\right)}{4 + 3\left(\frac{\cos\theta}{\sin\theta}\right)}$$

$$= \frac{5 - 3\times 3/5}{4 + 3\times 3/5} = \frac{25-9}{20+9}$$

$= 16/29$

Class 10th RECAP

(i) $\sin^2\theta + \cos^2\theta = 1;$

(ii) $1 + \tan^2\theta = \sec^2\theta;$

(iii) $1 + \cot^2\theta = \operatorname{cosec}^2\theta.$

$\sin^2\theta = 1 - \cos^2\theta = (1-\cos\theta)(1+\cos\theta)$

Similarly $\cos^2\theta = 1 - \sin^2\theta = (1-\sin\theta)(1+\sin\theta)$

$\sec^2\theta - \tan^2\theta = 1 \Rightarrow (\sec\theta + \tan\theta)(\sec\theta - \tan\theta) = 1$

$$\sec\theta - \tan\theta = \frac{1}{\sec\theta + \tan\theta}$$

$\operatorname{Cosec}^2\theta - \cot^2\theta = 1$

$$\Rightarrow \operatorname{Cosec}\theta - \cot\theta = \frac{1}{\operatorname{Cosec}\theta + \cot\theta}$$

A) Kiya Hai

B) Nahi Kia

Q→ If $\sec\theta + \tan\theta = 7$

$\Rightarrow \sec\theta - \tan\theta = 1/7$

Question

If $\sec\theta + \tan\theta = p$, then $\cos\theta =$

(A) $\frac{2p}{1-p^2}$

(B) $\frac{2p}{1+p^2}$ ✓

(C) $\frac{2p}{p^2-1}$

(D) $\frac{p}{p^2+1}$

[Ans. B]

Given $\sec\theta + \tan\theta = p$

$\Rightarrow$ $\sec\theta - \tan\theta = 1/p$

(+)

$2\sec\theta = p + 1/p$

$2\sec\theta = \frac{p^2+1}{p}$

$\sec\theta = \frac{p^2+1}{2p}$

$\cos\theta = \frac{2p}{p^2+1}$

M-2 Long Method

$\frac{1}{\cos\theta} + \frac{\sin\theta}{\cos\theta} = p$

$1 + \sin\theta = p\cos\theta$

$\sin\theta = p\cos\theta - 1$

SBS

Question

If $a\cos\theta + b\sin\theta = c$ then $(a\sin\theta - b\cos\theta)^2 =$

A $c^2 - a^2 - b^2$

B $c^2 - a^2 + b^2$

C $a^2 - b^2 + c^2$

D $a^2 + b^2 - c^2$ ✓

$a^2(\underbrace{\cos^2\theta + \sin^2\theta}_{1})$

SBS.

$(a\cos\theta + b\sin\theta)^2 = c^2$

$a^2\cos^2\theta + b^2\sin^2\theta + 2ab\sin\theta\cos\theta = c^2 \rightarrow (1)$

$(a\sin\theta - b\cos\theta)^2 = K$

$a^2\sin^2\theta + b^2\cos^2\theta - 2ab\sin\theta\cos\theta = K \rightarrow (2)$

$(1) + (2)$

$a^2 + b^2 = c^2 + K$

$K = a^2 + b^2 - c^2$

Question

If $a\cos\theta + b\sin\theta = 3$ & $a\sin\theta - b\cos\theta = 4$ then find $(a)^2 + (b)^2 =$

SBS + SBS

$a^2 + b^2 = 3^2 + 4^2$

$a^2 + b^2 = 25$

Question

Prove that, $\sin^3 A + \cos^3 A = (\sin A + \cos A)(1 - \sin A \cos A)$

$a^3 + b^3 = (a+b)(a^2 + b^2 - ab)$

$a \rightarrow \sin A$
$b \rightarrow \cos A$

$(\sin A)^3 + (\cos A)^3 = (\sin A + \cos A)(\sin^2 A + \cos^2 A - \sin A \cos A)$

$= (\sin A + \cos A)(1 - \sin A \cos A)$

Question (HW ✓ 10th class)

Prove that $(1 + \cot A - \operatorname{cosec} A)(1 + \tan A + \sec A) = 2$

Important Note

$$\cos^4 A + \sin^4 A = 1 - 2\sin^2 A \cos^2 A$$

Consider

$$\cos^2 A + \sin^2 A = 1$$

S.B.S.

$$(\cos^2 A + \sin^2 A)^2 = 1$$

$$(\cos^2 A)^2 + (\sin^2 A)^2 + 2\cos^2 A \sin^2 A = 1$$

$$\cos^4 A + \sin^4 A = 1 - 2\cos^2 A \sin^2 A$$

$(a+b)^3 = a^3 + b^3 + 3ab(a+b)$

$a^3 + b^3 =$

$$\cos^6 A + \sin^6 A = 1 - 3\sin^2 A \cos^2 A$$

$\cos^2 A + \sin^2 A = 1$

C.B.S

$$(\cos^2 A + \sin^2 A)^3 = 1$$

$$(\cos^2 A)^3 + (\sin^2 A)^3 + 3\cos^2 A \sin^2 A (\underbrace{\cos^2 A + \sin^2 A}_{1}) = 1$$

$$\cos^6 A + \sin^6 A + 3\cos^2 A \sin^2 A = 1$$

$$\cos^6 A + \sin^6 A = 1 - 3\cos^2 A \sin^2 A$$

M-2 LHS:

$$(\cos^2 A)^3 + (\sin^2 A)^3 = (\underbrace{\cos^2 A + \sin^2 A}_{1})(\cos^4 A + \sin^4 A - \sin^2 A \cos^2 A)$$

$$= 1 \times [\underbrace{\cos^4 A + \sin^4 A}_{1 - 2\sin^2 A \cos^2 A} - \sin^2 A \cos^2 A]$$

$$= [1 - 2\sin^2 A \cos^2 A - \sin^2 A \cos^2 A]$$

$$= 1 - 3\sin^2 A \cos^2 A$$

Question [JEE Main 2019 (11 Jan. Shift-1)]

[Ans. A]

Let $f_k(x) = \frac{1}{k}(\sin^k x + \cos^k x)$ for $k = 1, 2, 3, \ldots$. Then for all $x \in R$, the value of $f_4(x) - f_6(x)$ is equal to:

(A) $\frac{1}{12}$

(B) $\frac{1}{4}$

(C) $\frac{-1}{12}$

(D) $\frac{5}{12}$

put $K = 4$

$$f_4(x) = \frac{1}{4}(\sin^4 x + \cos^4 x) = \frac{1}{4}\left[1 - 2\sin^2 x \cos^2 x\right] = \frac{1}{4} - \frac{1}{2}\sin^2 x \cos^2 x \longrightarrow (1)$$

Put $K = 6$

$$f_6(x) = \frac{1}{6}\left[\sin^6 x + \cos^6 x\right] = \frac{1}{6}\left[1 - 3\sin^2 x \cos^2 x\right] = \frac{1}{6} - \frac{1}{2}\sin^2 x \cos^2 x \longrightarrow (2)$$

$(-) \quad - \quad +$

M-2 objective trick

clearly Ans doesn't depend on 'x' (options)

$f_4(0) = \frac{1}{4}(0+1) = \frac{1}{4}$

$f_6(0) = \frac{1}{6}(0+1) = \frac{1}{6}$

] Subtract $\frac{1}{4} - \frac{1}{6} = \frac{1}{12}$

$$f_4(x) - f_6(x) = \frac{1}{4} - \frac{1}{6}$$

$$\frac{3-2}{12} = \frac{1}{12}$$

Question

Prove that, $\sin^8 A - \cos^8 A = (\sin^2 A - \cos^2 A)(1 - 2\sin^2 A\cos^2 A)$

LHS: $(\sin^4 A)^2 - (\cos^4 A)^2$

$(\sin^4 A + \cos^4 A)(\sin^4 A - \cos^4 A)$

$(1 - 2\sin^2 A\cos^2 A)((\sin^2 A)^2 - (\cos^2 A)^2)$

$(1 - 2\sin^2 A\cos^2 A)(\sin^2 A - \cos^2 A)(\underbrace{\sin^2 A + \cos^2 A}_{1})$

$(1 - 2\sin^2 A\cos^2 A)(\sin^2 A - \cos^2 A)$

RHS.

Question [JEE Main 2021 (February)]

If $15\sin^4\alpha + 10\cos^4\alpha = 6$, for some $\alpha \in R$, then the value of $27\sec^6\alpha + 8\operatorname{cosec}^6\alpha$ is equal to:

(A) 350

(B) 500

(C) 400

(D) 250

[Ans.]

$15\sin^4\alpha + 10\cos^4\alpha = 6$

$15(\sin^2\alpha)^2 + 10(\cos^2\alpha)^2 = 6$

$15(\sin^2\alpha)^2 + 10(1-\sin^2\alpha)^2 = 6$

Let $\sin^2\alpha = K$

$15(K)^2 + 10(1-K)^2 = 6$

$15K^2 + 10(1+K^2-2K) = 6$

$15K^2 + 10 + 10K^2 - 20K = 6$

$25K^2 - 20K + 4 = 0$

$(5K)^2 - 20K + (2)^2 = 0$

$\cos^2\theta = 1 - \sin^2\alpha$

$(5K)^2 + (2)^2 - 2\times 5K\times 2 = 0$

$(5K-2)^2 = 0$

$\Rightarrow 5K-2 = 0$

$K = 2/5$

$\sin^2\alpha = 2/5$

$\cos^2\alpha = 1-\sin^2\alpha$

$\Rightarrow \operatorname{cosec}^2\alpha = 5/2$

$1-2/5 = 3/5 \Rightarrow \sec^2\alpha = 5/3$

$27(\sec^2\alpha)^3 + 8(\operatorname{cosec}^2\alpha)^3$

$27(5/3)^3 + 8(5/2)^3$

$\cancel{27}\times\frac{125}{\cancel{27}} + 125$

Question [JEE Main 2025 (4 April)]

[Ans A]

If $10\sin^4\theta + 15\cos^4\theta = 6$, then the value of $\frac{24\,\text{cosec}^6\,\theta + 8\sec^6\theta}{16\sec^8\theta}$ is:

HW

(A) $\frac{2}{5}$

(B) $\frac{3}{4}$

(C) $\frac{3}{5}$

(D) $\frac{1}{5}$

HW

Question

[Ans.A]

If $\tan\theta = \sqrt{\frac{a}{b}}$ where a, b are positive reals numbers and $\theta \in 1^{st}$ quadrant then the value of $\sin\theta \sec^7\theta + \cos\theta \operatorname{cosec}^7\theta$ is

A $\dfrac{(a+b)^3(a^4+b^4)}{(ab)^{7/2}}$

B $\dfrac{(a+b)^3(a^4-b^4)}{(ab)^{7/2}}$

C $\dfrac{(a+b)^3(b^4-a^4)}{(ab)^{7/2}}$

D $-\dfrac{(a+b)^3(a^4+b^4)}{(ab)^{7/2}}$

RECAP

Trigonometric Ratios of Complementary Angles

If $\alpha + \beta = 90^\circ$
then α & β are called Complementary

Ex → 30° & 60°
10° & 80°
15° & 75°
20° & 70°

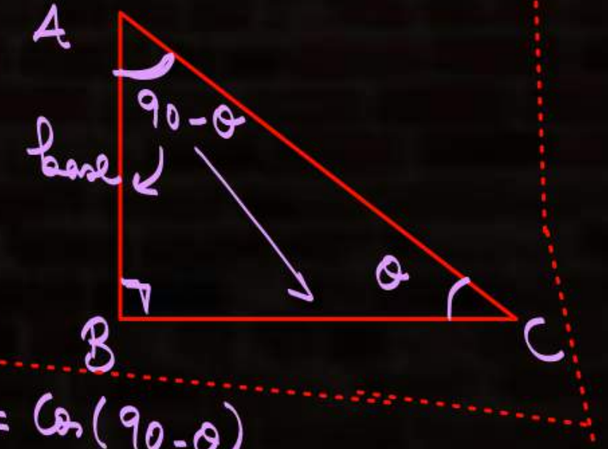
$\sin(90-\theta) = \cos\theta$
$\cos(90-\theta) = \sin\theta$
$\tan(90-\theta) = \cot\theta$
$\cot(90-\theta) = \tan\theta$
$\sec(90-\theta) = \operatorname{cosec}\theta$
$\operatorname{cosec}(90-\theta) = \sec\theta$

Proof:
In ΔABC

$\sin\theta = \frac{P}{H} = \frac{AB}{AC} \rightarrow (1)$

$\cos(90-\theta) = \frac{b}{H} = \frac{AB}{AC} \rightarrow (2)$

$\Rightarrow \sin\theta = \cos(90-\theta)$



$\cot 2^\circ = \tan 88^\circ$
$\tan 5^\circ = \cot 85^\circ$
$\sin 40^\circ = \cos 50^\circ$
$\cos 40^\circ = \sin 50^\circ$

$\sin 20^\circ = \cos 70^\circ$
$\sin 70^\circ = \cos 20^\circ$
$\tan 30^\circ = \cot 60^\circ$
$\tan 15^\circ = \cot 75^\circ$
$\sec 20^\circ = \operatorname{cosec} 70^\circ$
$\sec 1^\circ = \operatorname{cosec} 89^\circ$

Question

$\cos^2 25^\circ = \sin^2 65^\circ$

$$2\left(\frac{\cos^2 25^\circ + \cos^2 65^\circ}{\sin^2 74^\circ + \sin^2 16^\circ}\right) - \tan 45^\circ + \tan 14^\circ \tan 24^\circ \tan 30^\circ \tan 66^\circ \tan 76^\circ$$

$$2\left(\frac{\sin^2 65^\circ + \cos^2 65}{\cos^2 16 + \sin^2 16}\right) - 1 + \tan 14 \tan 24 \tan 30^\circ \cot 24^\circ \cot 14^\circ$$

$$2 \times 1 - 1 + \tan 14 \tan 24 \tan 30^\circ \cdot \frac{1}{\tan 24^\circ} \cdot \frac{1}{\tan 14}$$

$$2 - 1 + \tan 30^\circ$$

$$1 + \frac{1}{\sqrt{3}} \quad \text{Ans.}$$

Question

$$\left(\frac{\tan 20^\circ}{\operatorname{cosec} 70^\circ}\right)^2 + \left(\frac{\cot 20^\circ}{\sec 70^\circ}\right)^2 + 2\tan 15^\circ \tan 37^\circ \tan 53^\circ \tan 60^\circ \tan 75^\circ$$

$$\left(\frac{\tan 20^\circ}{\sec 20^\circ}\right)^2 + \left(\frac{\cot 20^\circ}{\operatorname{cosec} 20^\circ}\right)^2 + 2\tan 15 \tan 37^\circ \cot 37^\circ \tan 60 \cot 15^\circ$$

$$\left(\frac{\sin 20}{\cos 20 \cdot \frac{1}{\cos 20}}\right)^2 + \left(\frac{\cos 20}{\sin 20 \cdot \frac{1}{\sin 20}}\right)^2 + 2\tan 60$$

$$\sin^2 20 + \cos^2 20 + 2\tan 60$$

$$1 + 2\sqrt{3}$$

Question Prove that

$\tan 1^\circ \tan 2^\circ \tan 3^\circ \ldots\ldots \tan 89^\circ = 1$

$\tan 1 \cdot \tan 2 \cdot \tan 3 \cdot \tan 4 \cdot _ _ _ _ \cdot \tan 44 \cdot \tan 45 \cdot \tan 46 \cdot _ _ \cdot \tan 87 \cdot \tan 88 \cdot \tan 89$

$\cot 44 \quad \cot 3^\circ \quad \cot 2^\circ \quad \cot 1^\circ$

$\tan 45^\circ = 1$ Ans //

Question

$$\sin^2 5^\circ + \sin^2 10^\circ + \cdots + \sin^2 85^\circ + \sin^2 90^\circ = 9\frac{1}{2}$$

$\sin^2 40^\circ + \sin^2 45^\circ + \sin^2 50^\circ$

$\sin^2 5^\circ + \sin^2 10^\circ + \sin^2 15 + - - - - - - - - + \sin^2 80^\circ + \sin^2 85^\circ + \sin^2 90^\circ$

$\cos^2 10^\circ + \cos^2 5^\circ$

1

5
10
15
20
25
30
35
40

$(1 + \underbrace{1 + 1 + - - -}_{8 \text{ times}} 1) + \sin^2 45^\circ + 1$

$9 + \left(\frac{1}{\sqrt{2}}\right)^2$

$9 + \frac{1}{2} = 9\frac{1}{2}$ Ans

Question

$(\text{cosec}^2\ 73^\circ - \tan^2 17^\circ) =$

$73^\circ \longrightarrow 17^\circ$

$\text{Cosec}^2 73^\circ = \sec^2 17^\circ$

$\sec^2\theta - \tan^2\theta = 1$

$\sec^2 17 - \tan^2 17^\circ = 1$ ✓

[Ans. *B*]

(A) 0

(B) 1 ✓

(C) $\frac{3}{2}$

(D) None of these

Brain Teaser

[Ans 5]

If $\sin x + \sin^2 x = 1$, then the value of

$\cos^{12} x + 3\cos^{10} x + 3\cos^8 x + \cos^6 x + \cos^4 x + \cos^2 x + 3$ is

$\sin x = 1 - \sin^2 x$

$\sin x = \cos^2 x$

$\cos^2 x = \sin x$

$\cos^6 x = \sin^3 x$

$a^3 b^3 = (ab)^3$

$\cos^6 x [\cos^6 x + 3\cos^4 x + 3\cos^2 x + 1] + \cos^2 x [\cos^2 x + 1] + 3 = ?$

$\cos^6 x [(\cos^2 x)^3 + (1)^3 + 3\cos^2 x (\cos^2 x + 1)] + \cos^2 x (\cos^2 x + 1) + 3$

$\cos^6 x \cdot (\cos^2 x + 1)^3 + \cos^2 x (\cos^2 x + 1) + 3$

$\sin^3 x (\sin x + 1)^3 + \sin x (\sin x + 1) + 3$

$(\sin x (\sin x + 1))^3 + \underbrace{\sin^2 x + \sin x}_{1} + 3$

$(1)^3 + 1 + 3$

$= 1 + 1 + 3 = 5$

Brain Teaser

If $\frac{\sin^4\theta}{a}+\frac{\cos^4\theta}{b}=\frac{1}{a+b}$, then show that $\frac{\sin^8\theta}{a^3}+\frac{\cos^8\theta}{b^3}=\frac{1}{(a+b)^3}$.

$$\left(\frac{a+b}{a}\right)\sin^4\theta+\left(\frac{a+b}{b}\right)\cos^4\theta=1$$

$$\left(1+\frac{b}{a}\right)\sin^4\theta+\left(1+\frac{a}{b}\right)\cos^4\theta=1$$

$$\sin^4\theta+\frac{b}{a}\sin^4\theta+\cos^4\theta+\frac{a}{b}\cos^4\theta=1$$

$$\cancel{-2\sin^2\theta\cos^2\theta}+\frac{b}{a}\sin^4\theta+\frac{a}{b}\cos^4\theta=\cancel{1}$$

$$\frac{a}{b}\cos^4\theta+\frac{b}{a}\sin^4\theta-2\sin^2\theta\cos^2\theta=0$$

$$\frac{a^2\cos^4\theta+b^2\sin^4\theta-2ab\sin^2\theta\cos^2\theta}{ab}=0$$

$$(a\cos^2\theta)^2+(b\sin^2\theta)^2-2a\sin^2\theta\, b\cos^2\theta=0$$

$$(a\cos^2\theta-b\sin^2\theta)^2=0$$

$$\Rightarrow a\cos^2\theta=b\sin^2\theta=K\ (\text{let})$$

$$\cos^2\theta=K/a$$
$$\sin^2\theta=K/b$$
add

$$1=K/a+K/b$$
$$1=K\left(\frac{1}{a}+\frac{1}{b}\right)$$
$$1=K\left(\frac{a+b}{ab}\right)$$
$$K=\frac{ab}{a+b}$$

$$K = \frac{ab}{a+b}$$

$$\cos^2\theta = \frac{K}{a} = \frac{ab}{a(a+b)} = \frac{b}{a+b}$$

$$\sin^2\theta = \frac{K}{b} = \frac{a}{a+b}$$

$$\sin^2\theta = \frac{a}{a+b}$$

$$\sin^8\theta = \frac{a^4}{(a+b)^4} \quad \& \quad \cos^8\theta = \frac{b^4}{(a+b)^4}$$

$$\Rightarrow \boxed{\frac{\sin^8\theta}{a^3} = \frac{a}{(a+b)^4}} \rightarrow (1) \quad \& \quad \boxed{\frac{\cos^8\theta}{b^3} = \frac{b}{(a+b)^4}} \rightarrow (2)$$

(1) + (2)

$$\frac{\sin^8\theta}{a^3} + \frac{\cos^8\theta}{b^3} = \frac{(a+b)}{(a+b)^4}$$

$$= \frac{1}{(a+b)^3} \quad \text{Ans//}$$

Brain Teaser

HW

[Ans. $(56)^2$]

If $\frac{9x}{\cos\theta}+\frac{5y}{\sin\theta}=56$ and $\frac{9x\sin\theta}{\cos^2\theta}-\frac{5y\cos\theta}{\sin^2\theta}=0$,

then find the value of $\left[(9x)^{\frac{2}{3}}+(5y)^{\frac{2}{3}}\right]^3$

Homework

Prove That

- $\cos^4 A - \sin^4 A + 1 = 2\cos^2 A$
- $(\sin A + \cos A)(1 - \sin A \cos A) = \sin^3 A + \cos^3 A$
- $\frac{\sin A}{1 + \cos A} + \frac{1 + \cos A}{\sin A} = 2\operatorname{cosec} A$
- $\cos^6 A + \sin^6 A = 1 - 3\sin^2 A \cos^2 A$
- $\sqrt{\frac{1 - \sin A}{1 + \sin A}} = \sec A - \tan A$
- $\frac{\operatorname{cosec} A}{\operatorname{cosec} A - 1} + \frac{\operatorname{cosec} A}{\operatorname{cosec} A + 1} = 2\sec^2 A$

Homework

- $\frac{\text{cosec}A}{\cot A + \tan A} = \cos A$
- $\frac{1}{\cot A + \tan A} = \sin A \cos A$
- $\frac{1}{\sec A - \tan A} = \sec A + \tan A$
- $\frac{1 - \tan A}{1 + \tan A} = \frac{\cot A - 1}{\cot A + 1}$
- $\frac{\sec A - \tan A}{\sec A + \tan A} = 1 - 2\sec A \tan A + 2\tan^2 A$
- $\frac{\cos A}{1 - \tan A} + \frac{\sin A}{1 - \cot A} = \sin A + \cos A$

Homework

✓ REVISE Class 10th Trigo

Complementary Angles Ex from 10th NCERT

THANK YOU

Lage Raho !!